

Serial Number: 09/549,848A

ENTERED

- ☐ Changed a file from non-ASCII to ASCII
- ☐ Changed the margins in cases where the sequence text was "wrapped" down to the next line.
- ☐ Edited a format error in the Current Application Data section, specifically:
- ☐ Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other _____
- ☐ Added the mandatory heading and subheadings for "Current Application Data".
- ☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.
- ☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically:
- ☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:
- ☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:
- ☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.
- ☐ Inserted colons after headings/subheadings. Headings edited included:
- ☐ Deleted extra, invalid, headings used by an applicant, specifically:
- ☐ Deleted: ☐ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/initials at the end of file;
☐ page numbers throughout text; ☐ other invalid text, such as _____
- ☒ Inserted mandatory headings, specifically: Seq 90 - inserted 2127 and response
- ☐ Corrected an obvious error in the response, specifically:
- ☐ Edited identifiers where upper case is used but lower case is required, or vice versa.
- ☐ Corrected an error in the Number of Sequences field, specifically:
- ☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.
- ☐ Deleted ending stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____
- ☐ Other: _____

RECEIVED

DEC 11 2003

TECH CENTER 11/27/2003

Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

1638

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/549,848A DATE: 11/27/2000
 TIME: 17:38:06

Input Set : A:\17133US2.txt
 Output Set: N:\CRF3\11272000\I549848A.raw

Does Not Comply
 Corrected Diskette Needed

4 <110> APPLICANT: Lassner, Michael
 5 Post-Beittenmiller, Dusty
 6 Savidge, Beth
 7 Weiss, James
 9 <120> TITLE OF INVENTION: Nucleic Acid Sequences Involved in
 10 Tocopherol Synthesis
 12 <130> FILE REFERENCE: 17133/02/US
 14 <140> CURRENT APPLICATION NUMBER: 09/549,848A
 15 <141> CURRENT FILING DATE: 2000-04-14
 17 <150> PRIOR APPLICATION NUMBER: 60/129,899
 18 <151> PRIOR FILING DATE: 1999-04-15
 20 <150> PRIOR APPLICATION NUMBER: 60/146,461
 21 <151> PRIOR FILING DATE: 1999-07-30
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 25 <170> SOFTWARE: FastSEQ for Windows Version 4.0
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 29 <212> TYPE: DNA
 30 <213> ORGANISM: Arabidopsis sp
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 35 aaagtgtgct caaaaccgaa gtttaggaac aatcttggtt ggcctgatgg tcaaggatct 180
 36 tcattgttgt tgtatccaaa acataagtcg agatttcggg ttaatgccac tgcgggtcag 240
 37 cctgaggctt tcgactcgaa tagcaaacag aagtctttta gagactcgtt agatgcgttt 300
 38 tacaggtttt ctaggcctca tacagttatt ggcacagtgc ttagcatttt atctgtatct 360
 39 ttcttagcag tagagaaggt ttctgatata tctcctttac ttttcaactg catcttgag 420
 40 gctgttgttg cagctctcat gatgaacatt tacatagttg ggctaaatca gttgtctgat 480
 41 gttgaaatag ataaggttaa caagccctat ctccattgg catcaggaga atattctgtt 540
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 43 gttggttcat ggccattggt ctgggctctt ttgtgtgagtt tcatgctcgg tactgcatac 660
 44 tctatcaatt tgcactttt acggtggaaa agatttgcat tggttgcagc aatgtgtatc 720
 45 ctgctgttcc gagctattat tgttcaaatc gcccttttacc tacatatcca gacacatgtg 780
 46 ttggaagac caatcttgtt cactaggcct ctatttttcg ccactgcgtt tatgagcttt 840
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 48 ggaatccgat cattctctgt aactctgggt cagaaacggg tgttttggaac atgtgttaca 960
 49 ctacttcaaa tggttaacgc tgttgcatt ctagtggag ccacatctcc attcatatgg 1020
 50 agcaaaqtca tctcgggtgt gggtcatgtt ataactcgaa caactttgtg ggctcgagct 1080
 51 aagtcctgtg atctgagtag caaaaccgaa ataacttcat gttatatgtt catatggaag 1140
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 56 <212> TYPE: PRT
 57 <213> ORGANISM: Arabidopsis sp
 59 <400> SEQUENCE: 2
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63           20           25           30
64 Arg Val Leu Arg Cys Asp Ser Ser Lys Val Val Ala Lys Pro Lys Phe
65           35           40           45
66 Arg Asn Asn Leu Val Arg Pro Asp Gly Gln Gly Ser Ser Leu Leu Leu
67           50           55           60
68 Tyr Pro Lys His Lys Ser Arg Phe Arg Val Asn Ala Thr Ala Gly Gln
69 65           70           75           80
70 Pro Glu Ala Phe Asp Ser Asn Ser Lys Gln Lys Ser Phe Arg Asp Ser
71           85           90           95
72 Leu Asp Ala Phe Tyr Arg Phe Ser Arg Pro His Thr Val Ile Gly Thr
73           100          105          110
74 Val Leu Ser Ile Leu Ser Val Ser Phe Leu Ala Val Glu Lys Val Ser
75           115          120          125
76 Asp Ile Ser Pro Leu Leu Phe Thr Gly Ile Leu Glu Ala Val Val Ala
77           130          135          140
78 Ala Leu Met Met Asn Ile Tyr Ile Val Gly Leu Asn Gln Leu Ser Asp
79 145           150          155          160
80 Val Glu Ile Asp Lys Val Asn Lys Pro Tyr Leu Pro Leu Ala Ser Gly
81           165          170          175
82 Glu Tyr Ser Val Asn Thr Gly Ile Ala Ile Val Ala Ser Phe Ser Ile
83           180          185          190
84 Met Ser Phe Trp Leu Gly Trp Ile Val Gly Ser Trp Pro Leu Phe Trp
85           195          200          205
86 Ala Leu Phe Val Ser Phe Met Leu Gly Thr Ala Tyr Ser Ile Asn Leu
87           210          215          220
88 Pro Leu Leu Arg Trp Lys Arg Phe Ala Leu Val Ala Ala Met Cys Ile
89 225          230          235          240
90 Leu Ala Val Arg Ala Ile Ile Val Gln Ile Ala Phe Tyr Leu His Ile
91           245          250          255
92 Gln Thr His Val Phe Gly Arg Pro Ile Leu Phe Thr Arg Pro Leu Ile
93           260          265          270
94 Phe Ala Thr Ala Phe Met Ser Phe Phe Ser Val Val Ile Ala Leu Phe
95           275          280          285
96 Lys Asp Ile Pro Asp Ile Glu Gly Asp Lys Ile Phe Gly Ile Arg Ser
97           290          295          300
98 Phe Ser Val Thr Leu Gly Gln Lys Arg Val Phe Trp Thr Cys Val Thr
99 305          310          315          320
100 Leu Leu Gln Met Ala Tyr Ala Val Ala Ile Leu Val Gly Ala Thr Ser
101           325          330          335
102 Pro Phe Ile Trp Ser Lys Val Ile Ser Val Val Gly His Val Ile Leu
103           340          345          350
104 Ala Thr Thr Leu Trp Ala Arg Ala Lys Ser Val Asp Leu Ser Ser Lys
105           355          360          365
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108 Glu Tyr Leu Leu Leu Pro Phe Leu Lys
109 385          390
111 <210> SEQ ID NO: 3

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RAW SEQUENCE LISTING

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Input Set : A:\17133US2.txt

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114 <213> ORGANISM: Arabidopsis sp
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119 actaccattt acacaaatcc ttccactaag tgttatcctt catggaatga taattaccac      180
120 gtatggagta aaggaagaga attgcacag gagaagtttt ttggtgttgg ttggaattac      240
121 agattaattt gtggaatgtc gtcgtctctt tcggttttgg agggaaagcc gaagaaagat      300
122 gataaggaga agagtgtatg tgttggtgtt aagaaagctt cttgtaga tttgtattta      360
123 ccagaagaag ttgaggttga tgctaagctt gctcgattgg ataaacccat tggaaacttg      420
124 ttgcttgctt ggccttctat gtgtgtgatt qcggttgctg ctgactctgg aagccttcca      480
125 agtttttaaa atattgcttt atttggttgc ggaacattac ttcttagagg tgctggttgt      540
126 actataaatg atctgtctga tcaggacata gatacaaaag ttgactgtac aaaactaaga      600
127 cctatcgcca gtgttctttt gacaccattt caagggattg gatttctcgg gctgcagttg      660
128 ctttttaggt tagggattct tctccaactt aacaattaca gccgtgtttt aggggcttca      720
129 tctttgttac ttgtcttttc ctaccactt atgaagaggt ttacattttg qccccaagcc      780
130 tttttagggt tgaccataaa ctggggagca ttgttaggat ggactgcagt taaaggaagc      840
131 atagcaccat ctattgtact cctctcttat ctctccggag tctgctggac ccttgtttat      900
132 gatactattt atgcacatca qgacaaagaa gatgatgtaa aagttggtgt taagtcaaca      960
133 gcccttagat tcggtgataa taaaaagctt tggttaactg gatttggcac agcatccata      1020
134 ggttttcttg cactttcttg attcagtgca gatctcgggt ggcaatatta cgcatactg      1080
135 gccgctgcat caggacagtt aggatggcaa atagggacag ctgacttate atctggtgct      1140
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142 <213> ORGANISM: Arabidopsis sp
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148 20 25 30
149 His Lys Ser Leu Ser Asn Pro Val Thr Thr His Tyr Thr Asn Pro Phe
150 35 40 45
151 Thr Lys Cys Tyr Pro Ser Trp Asn Asp Asn Tyr Gln Val Trp Ser Lys
152 50 55 60
153 Gly Arg Glu Leu His Gln Glu Lys Phe Phe Gly Val Gly Trp Asn Tyr
154 65 70 75 80
155 Arg Leu Ile Cys Gly Met Ser Ser Ser Ser Val Leu Glu Gly Lys
156 85 90 95
157 Pro Lys Lys Asp Asp Lys Glu Lys Ser Asp Gly Val Val Val Lys Lys
158 100 105 110
159 Ala Ser Trp Ile Asp Leu Tyr Leu Pro Glu Glu Val Arg Gly Tyr Ala
160 115 120 125
161 Lys Leu Ala Arg Leu Asp Lys Pro Ile Gly Thr Trp Leu Leu Ala Trp
162 130 135 140
163 Pro Cys Met Trp Ser Ile Ala Leu Ala Ala Asp Pro Gly Ser Leu Pro

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Input Set : A:\17133US2.txt
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164 145          150          155          160
165 Ser Phe Lys Tyr Met Ala Leu Phe Gly Cys Gly Ala Leu Leu Arg
166          165          170          175
167 Gly Ala Gly Cys Thr Ile Asn Asp Leu Leu Asp Gln Asp Ile Asp Thr
168          180          185          190
169 Lys Val Asp Arg Thr Lys Leu Arg Pro Ile Ala Ser Gly Leu Leu Thr
170          195          200          205
171 Pro Phe Gln Gly Ile Gly Phe Leu Gly Leu Gln Leu Leu Leu Gly Leu
172          210          215          220
173 Gly Ile Leu Leu Gln Leu Asn Asn Tyr Ser Arg Val Leu Gly Ala Ser
174 225          230          235          240
175 Ser Leu Leu Leu Val Phe Ser Tyr Pro Leu Met Lys Arg Phe Thr Phe
176          245          250          255
177 Trp Pro Gln Ala Phe Leu Gly Leu Thr Ile Asn Trp Gly Ala Leu Leu
178          260          265          270
179 Gly Trp Thr Ala Val Lys Gly Ser Ile Ala Pro Ser Ile Val Leu Pro
180          275          280          285
181 Leu Tyr Leu Ser Gly Val Cys Trp Thr Leu Val Tyr Asp Thr Ile Tyr
182          290          295          300
183 Ala His Gln Asp Lys Glu Asp Asp Val Lys Val Gly Val Lys Ser Thr
184 305          310          315          320
185 Ala Leu Arg Phe Gly Asp Asn Thr Lys Leu Trp Leu Thr Gly Phe Gly
186          325          330          335
187 Thr Ala Ser Ile Gly Phe Leu Ala Leu Ser Gly Phe Ser Ala Asp Leu
188          340          345          350
189 Gly Trp Gln Tyr Tyr Ala Ser Leu Ala Ala Ala Ser Gly Gln Leu Gly
190          355          360          365
191 Trp Gln Ile Gly Thr Ala Asp Leu Ser Ser Gly Ala Asp Cys Ser Arg
192          370          375          380
193 Lys Phe Val Ser Asn Lys Trp Phe Gly Ala Ile Ile Phe Ser Gly Val
194 385          390          395          400
195 Val Leu Gly Arg Ser Phe Gln
196          405

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198 <210> SEQ ID NO: 5
 199 <211> LENGTH: 1296
 200 <212> TYPE: DNA
 201 <213> ORGANISM: Arabidopsis sp
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206 cctccggtct cgacggaatc aactgctaag ttaggatca ctggtgttag atctgatgcc 180
207 aatcgagttt ttgccaactg tactgccgcc gctacagcta cagctaccac cgtgagatt 240
208 tcgtctagag ttgcggcttt gctggatta gggcatcact adgctcgttg ttattggag 300
209 ctttctaaag cttaacittag tatgcttgtg gttgcagctt ctgggaactgg gtatatctg 360
210 ggtacgggaa atgctgcaat tagcttccc gggctttgtt acacatgtgc aggaaccatg 420
211 atgattgctg catctgctaa ttccctgaat cagatttttg agataagcad tgattctaag 480
212 atgaaaagaa cgaatgctaag gccattgcct tcaggacgta ttagtgttcc acacgctgtt 540
213 gcattggcta ctattgctgg tgcttctggt gcttgtttg ttggccagca gactaatatg 600
214 ttggtgctg gacttgcatc tgccaatctt gtactttatg cgtttgttta tactccgtt 660

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TIME: 17:38:06

Input Set : A:\17133US2.txt

Output Set: N:\CRF3\11272000\I549848A.raw

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215 aagcaacttc accctatcaa tacatgggtt ggcgtgtt ttggtgtat cccacccttg 720
216 ctgggtggg cggcagcgtc tggtcagatt tcatacaatt cgatgattct tccagctgct 780
217 ctttactttt ggcagatacc tcattttatg gcccttgcac atctctgccc caatgattat 840
218 gcaagctggag gttacaagat gttgtcactc ttggtccgt cagggaagag aatagcagca 900
219 gtggctctaa ggaactgctt ttacatgatc cctctcgtt tcctcgccta tgactggggg 960
220 ttaacctcaa gttggttttg cctcgaatca acacttctca cactagcaat cgtgcaaca 1020
221 gcattttcat tctaccgaga ccggaccatg cataaagcaa ggaaaatgtt ccatgccagt 1080
222 cttctcttcc ttctgtttt catgtctgtt cttctctac accgtgtctc taatgataat 1140
223 cagcaacaag tctagaaga agccggatta acaaatctg tatctgtga agtcaaaact 1200
224 cagaggcgaa agaaacgtgt ggtcaacct ccggtggct atgcctctgc tgcaccgttt 1260
225 ctttctctcc cagctcttcc cttctactct ccatga 1296
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228 <211> LENGTH: 431
229 <212> TYPE: PRT
230 <213> ORGANISM: Arabidopsis sp
232 <400> SEQUENCE: 6
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237 Cys Ala Val Asn Ser Phe Ser Gln Pro Pro Val Ser Thr Glu Ser Thr
238 35 40 45
239 Ala Lys Leu Gly Ile Thr Gly Val Arg Ser Asp Ala Asn Arg Val Phe
240 50 55 60
241 Ala Thr Ala Thr Ala Ala Ala Thr Ala Thr Ala Thr Thr Gly Glu Ile
242 65 70 75 80
243 Ser Ser Arg Val Ala Ala Leu Ala Gly Leu Gly His His Tyr Ala Arg
244 85 90 95
245 Cys Tyr Trp Glu Leu Ser Lys Ala Lys Leu Ser Met Leu Val Val Ala
246 100 105 110
247 Thr Ser Gly Thr Gly Tyr Ile Leu Gly Thr Gly Asn Ala Ala Ile Ser
248 115 120 125
249 Phe Pro Gly Leu Cys Tyr Thr Cys Ala Gly Thr Met Met Ile Ala Ala
250 130 135 140
251 Ser Ala Asn Ser Leu Asn Gln Ile Phe Glu Ile Ser Asn Asp Ser Lys
252 145 150 155 160
253 Met Lys Arg Thr Met Leu Arg Pro Leu Pro Ser Gly Arg Ile Ser Val
254 165 170 175
255 Pro His Ala Val Ala Trp Ala Thr Ile Ala Gly Ala Ser Gly Ala Cys
256 180 185 190
257 Leu Leu Ala Ser Lys Thr Asn Met Leu Ala Ala Gly Leu Ala Ser Ala
258 195 200 205
259 Asn Leu Val Leu Tyr Ala Phe Val Tyr Thr Pro Leu Lys Gln Leu His
260 210 215 220
261 Pro Ile Asn Thr Trp Val Gly Ala Val Val Gly Ala Ile Pro Pro Leu
262 225 230 235 240
263 Leu Gly Trp Ala Ala Ala Ser Gly Gln Ile Ser Tyr Asn Ser Met Ile
264 245 250 255
265 Leu Pro Ala Ala Leu Tyr Phe Trp Gln Ile Pro His Phe Met Ala Leu

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VERIFICATION SUMMARY

PATENT APPLICATION: US/09/549,848A

DATE: 11/27/2000

TIME: 17:38:07

Input Set : A:\17133US2.txt

Output Set: N:\CRF3\11272000\I549848A.raw

L:314 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:315 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:679 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:680 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:681 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:760 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:773 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26
L:790 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:791 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:793 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:1759 M:282 W: Numeric Field Identifier Missing, <212> is required.